ABSTRACT

A mega-boule is used in fabricating microchannel plates (MCPs). The mega-boule has a cross-sectional surface including an island section, an inner perimeter section and an outer perimeter section, each section occupying a distinct portion of the cross-sectional surface. The island section is formed of a first plurality of optical fibers, transversely oriented to the cross-sectional surface, each optical fiber including a cladding formed of non-etchable material and a core formed of etchable material. The inner perimeter section is formed of non-etchable material and is disposed to surround the island section. The outer perimeter section is formed of a second plurality of optical fibers, transversely oriented to the cross-sectional surface, each optical fiber including a cladding formed of non-etchable material and a core formed of etchable material, and the outer perimeter section is disposed to surround the island section and the inner perimeter section. The first plurality of optical fibers of the island section form transverse microchannels for an MCP, when the island section is etched, and the second plurality of optical fibers of the outer perimeter section form perforated cleave planes, when the outer perimeter section is etched.